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This instruction implements AFPD 63-12 and AFI 63-1201, *Assurance of Operational Safety, Suitability, & Effectiveness.* It assigns AFMC responsibilities and requires the development of processes and technical standards, and the implementation of best practices by product line. (Note: Per AFI 37-124, the reporting of metric information is approved and licensed with the Report Control Symbol (RCS): MTC-XP(AR)9302, AFMC Performance Measurement.)

(HILL) AFMCI 63-1201, 5 April 2000, is supplemented as follows:

(HILL) This supplement applies to all OO-ALC managed US Air Force systems and end items, including those operated by the Air National Guard and US Air Force Reserve as well as to systems and end items procured, operated, and/or maintained by the US Air Force for other government agencies.

1. AFMC Business Areas. AFMC Business Area Plans will address implementation requirements (resources, training, tools, etc.) for assurance of operational safety, suitability, and effectiveness (OSS&E) for designated Air Force systems and end-items managed by AFMC.

1. (HILL) AFMC Business Areas. OO-ALC Business Area Plans in support of AFMC Business Areas will address implementation requirements (resources, training, tools, etc.) for assurance of OSS&E for OO-ALC assigned systems and end items.

2. Air Force Product Lines. AFPD 63-12 defines four product lines (Air, Air Armament, Command and Control, and Space and Missile). Responsibility for these product lines is assigned as follows:

2.1. Air systems are the responsibility of Aeronautical Systems Center (ASC).

2.2. Air Armament systems are the responsibility of Air Armament Center (AAC).

2.3. Command and Control (C2) systems are the responsibility of Electronic Systems Center (ESC).

2.4. Space and Missile systems are the responsibility of Space and Missile Systems Center (SMC).

3. Responsibilities and Authorities.

3.1. AFMC. For all operationally fielded systems and end items managed by **AFMC**, the **Product, Air Logistics, and Test Centers** will:

3.1.1. Assure preservation of operational safety, suitability, and effectiveness baselines of all operational systems and end-items provided to the user.

3.1.1. **(HILL)** The OO-ALC/CC will be responsible and accountable to AFMC/CC for the assurance of OSS&E for all OO-ALC assigned systems and end items.

3.1.2. Assign single manager (SM) responsibility for systems and end-items, that AFMC has OSS&E assurance responsibility.

3.1.2. **(HILL)** The Single Manager (SM) will be responsible and accountable to the OO-ALC/CC for the assurance of OSS&E for their assigned systems and end items.

3.1.3. Assign a chief engineer (CE) and lead engineer (LE) for all systems and end-items on the USAF/IL master list managed at their center or operating locations. "Basket" Program Offices may share a CE or LE among multiple programs.

3.1.3. **(HILL)** It is the responsibility of the SM or System Support Manager (SSM) to appoint a qualified and competent Chief Engineer/Lead Engineer (CE/LE).

3.1.4. Assign a senior technical advisor to provide advice and counsel to the center commander for technical matters. The senior technical advisors will support the CEs and LEs at their centers and request support of centers when required.

3.1.4. **(HILL)** The OO-ALC Senior Technical Advisor (STA) will chair the OO-ALC OSS&E Engineering Round Table (ERT). The OSS&E ERT shall be established to discuss, coordinate, and recommend, as appropriate, positions reflecting the interests and concerns of the OO-ALC technical community on policy issues. This will include OSS&E, certification of systems and end items, and other topics affecting the center technical community. The OSS&E ERT will provide a forum to share lessons learned and inform senior management of technical and engineering status of OO-ALC systems and end items. The OSS&E ERT will coordinate center OSS&E activities for consistency of application (this coordination shall not take precedence over or in any way replace the SM's responsibility and authority for the OSS&E of assigned systems). In addition to the OO-ALC STA, the OSS&E ERT membership will consist of the center's CE/LEs, OO-ALC/TIE, and the OO-ALC System Safety Manager (OO-ALC/SES).

3.1.5. Assure program offices, wherever located, properly implement the product guidance.

3.1.5. **(HILL)** The SM will develop, define, and document policies and procedures in the form of an OSS&E Assurance plan for their assigned systems and end items which implements the

OSS&E process IAW AFI 63-1201, *Assurance of Operational Safety, Suitability and Effectiveness*. In addition, in coordination with the user, the SM will develop, update, and maintain the OSS&E baselines for their assigned systems and end items. Each SM will document their OSS&E policies and procedures and maintain the documentation in a form available for review by appropriate authorities if requested. In most cases, this will not require development of entirely new systems or procedures. Elements of OSS&E already being satisfied by existing systems or procedures will only need to have documentation that references the existing system/procedure noting the guidance documents and/or system identifiers and a brief explanation of how the system/procedure operates to satisfy the mandatory OSS&E process elements. Detailed descriptions of each element may be found in AFI 63-1201.

3.1.6. Develop and report OSS&E assurance policy effectiveness and product line "health" metrics to the AFMC Commander and the Product Support Business Area.

3.1.6. **(HILL)** These items will be presented by the SM during the AFMC/CC Commander's Operational Readiness Review (CORR).

3.1.7. Identify requirements for the information systems necessary to evaluate the health of fielded systems and end-items. Provide the information system requirements to HQ AFMC/DR. Utilize existing data systems and information sources to maximum extent possible to assess the health of systems or end items.

3.1.8. Notify HQ AFMC/DR of new and existing operational systems and end-items that should be entered on the USAF/IL master list along with the recommended management organization. Inform HQ AFMC/DR of items leaving operational use for deletion from the list.

3.1.8. **(HILL)** These tasks are the responsibility of OO-ALC/XP.

3.1.9. Review/analyze all product line mishap reports. Notify applicable single managers, CEs or LEs of possible trends or systemic problems affecting their systems. Modify technical standards, practices, and guidance as necessary to ensure OSS&E.

3.1.9. **(HILL)** These tasks are the responsibility of OO-ALC/SE and the SM safety staffs.

3.1.10. **(Added-HILL)** The SM will be the responsible authority for approving all configuration and maintenance changes and modifications to their assigned systems and end items.

3.1.11. **(Added-HILL)** The SSM will establish and define OSS&E relationships with the SMs of assigned systems and end items.

3.2. Product Centers will:

3.2.1. Develop, deploy, and maintain guidance, OSS&E tools and training necessary to support their product lines, this should include: operational safety, suitability, and effectiveness assurance criteria, metrics, processes, technical standards, procedures, handbooks, and best practices.

3.3. Air Logistics Centers and Test Centers will:

3.3.1. Assist the product centers in deploying product line policy, tools, training and guidance to the SMs, CEs, LEs and the engineering community assigned to their centers.

3.3.1. **(HILL)** The OO-ALC/CC will provide each SM and (SSM) adequate resources within constraints of resources allocated to the center to assure OSS&E of their assigned systems or end items.

3.3.2. Develop, deploy, and maintain guidance, OSS&E tools and training necessary to support their equipment that falls outside the product lines, this should include: operational safety, suitability, and effectiveness assurance criteria, metrics, processes, technical standards, procedures, handbooks, and best practices.

3.4. HQ AFMC/DR will:

3.4.1. Assign OSS&E assurance responsibility to the appropriate center for all operational systems and end-items that are managed by AFMC.

3.4.2. Provide a listing of designated programs and responsible AFMC organizations to USAF/IL. Notify USAF/IL of any changes.

3.4.3. Provide AFMC data requirements to USAF/IL on appropriate data systems (e.g., Integrated Maintenance Data System (IMDS)) to ensure support of OSS&E requirements.

3.4.4. Provide AFMC data requirements to USAF/SE for mishap report data system to ensure support of OSS&E requirements.

3.5. HQ AFMC/EN will:

3.5.1. Provide technical support and guidance on OSS&E assurance.

3.5.2. Assist in the development or modification of pipeline training that includes the requirements for assurance of operational safety, suitability, and effectiveness.

3.5.3. Develop the core qualification criteria for chief and lead engineers.

3.6. HQ AFMC/DO will:

3.6.1. Develop, deploy, and maintain guidance to the test centers for the preservation of OSS&E baselines.

3.6.2. Assist HQ AFMC/EN in the development or modification of training material to illustrate verification techniques for the preservation of operational safety, suitability, and effectiveness baselines.

3.7. HQ AFMC/DP will ensure that OSS&E assurance is included in pipeline training courses and other training methods deemed appropriate.

3.8. HQ AFMC/LG will ensure supply management and depot maintenance organizations do not change the configuration, sources of supply or maintenance for items they manage without approval from the responsible engineering authority.

3.9. AFRL will:

3.9.1. Develop, deploy, and maintain guidance defining the OSS&E requirements for laboratory developed systems and end items (including Advanced Technology Demonstrators (ATDs), Advanced Concept Technology Demonstrators (ACTDs) and experimental leave behind systems, etc.) provided to the user.

3.9.2. Notify HQ AFMC/DR of any laboratory developed systems and end items provided to the user for inclusion on the USAF/IL list.

3.10. Chief Engineer / Lead Engineer will:

3.10.1. Be responsible and accountable to their single manager for the consistent application of a disciplined engineering process, as defined in AFI 63-1201, to achieve and preserve operational safety, suitability, and effectiveness baselines throughout the system or end-item operational life.

3.10.2. The CE/LE has ultimate technical control of all components used in their systems. Ensure any delegated authority, for technical activities across the operational life of their systems, is to technically competent organic or contractor entities capable of performing those activities.

3.10.2. **(HILL)** The CE/LE will be responsible for development of appropriate agreements, to include Service Level Agreements (SLA), with supported or supporting organizations to maintain OSS&E of systems and end items. Such agreements may be in a format agreed to by each party but must be written and current copies maintained for reference by each signatory to the agreement.

3.10.3. Be responsible for system or end-item configurations to include all supply items (e.g., Defense Logistics Agency (DLA), AF, Navy, Army, etc.), and Operational Command, Air Force Reserve or Air National Guard initiated changes.

3.10.4. Ensure development and maintenance of appropriate technical data required to support the preservation of OSS&E baselines.

3.10.5. Develop sustainment actions (e.g., inspections, maintenance, training, tests, environmental, safety and health risk assessment, etc.) from fielded performance data to prevent OSS&E degradation.

3.10.6. Ensure manufacturing and repair entities provide quality products and services. Provide selection and qualification criteria for new sources of supply and maintenance repair.

3.10.7. Monitor available data sources such as FAA Airworthiness Directives, advisories and alerts, Original Equipment Manufacturer service literature, USAF Deficiency Reporting and Investigating System (T.O. 00-35D-54), Government Industry Data Exchange Program (GIDEP), etc., for information relevant to their engineering responsibilities.

3.10.8. Coordinate operational safety, suitability, and effectiveness assurance with other centers when systems or end-items involve more than one product line.

3.10.9. **(Added-HILL)** Be the primary SM representative to the OO-ALC ERT.

3.10.10. **(Added-HILL)** Identify requirements for the information systems necessary to evaluate the health of fielded systems and end items. Provide the information system requirements to HQ-AFMC/DR.

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Attachment 1

GLOSSARY OF TERMS

Terms

Assurance—A planned and systematic pattern of actions necessary to provide confidence that expected performance is achieved.

Baseline—A description of the operational safety, suitability, and effectiveness characteristics and limitations of any system, system increment, end-item, or end-item increment that must be understood, acknowledged and maintained during operational deployment, use, experimentation, exercises, training, and maintenance of the system or end-item. (The OSS&E baseline is established in development and updated as changes (threat, operational usage, aging, etc.) and improvements are made to the system/ end-item. The OSS&E baseline can include the configuration baseline (specifications, drawings, and S/ W code listings), MNSs/ORDs, TOs/TCTOs, certifications, training, maintenance facilities, spare parts, threat scenarios, etc.)

Chief Engineer (CE)—The individual responsible for all system technical activities, including engineering and configuration changes, in support of the System Program Director.

End-Item—Equipment that can be used by itself to perform a military function.

Lead Engineer (LE)—The individual responsible for all end-item technical activities, including engineering and configuration changes, in support of the end-item single manager.

Operational Effectiveness—The overall degree of mission accomplishment of a system used by representative personnel in the environment planned or expected (e.g., natural, electronic, threat) for operational employment of the system considering organization, doctrine, tactics, survivability, vulnerability, and threat (including countermeasures, initial nuclear weapons effects, and nuclear, biological, and chemical contamination threats).

Operational Safety—The condition of having acceptable risk to life, health, property, or environment caused by a system or subsystem when employing that system or subsystem in an operational environment. This requires the identification of hazards, assessment of risk, determination of mitigating measures, and acceptance of residual risk.

Operational Suitability—The degree to which a system can be placed satisfactorily in field use, with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime use rates, maintainability, safety, human factors, architectural and infrastructure compliance, manpower supportability, logistics supportability, natural environmental effects and impacts, and documentation and training requirements.

System—A specific grouping of components or elements designed and integrated to perform a military function.

Attachment 1 (HILL)

GLOSSARY OF REFERENCES AND SUPPORTING DOCUMENTATION

Terms

Assurance Plan—A plan that documents how the SM is to establish and preserve OSS&E for their assigned systems and end items.

(OSS&E Engineering Round Table (OSS&E ERT)—The OSS&E ERT shall be established \to discuss, coordinate, and recommend as appropriate, positions reflecting the interests and concerns of the OO-ALC technical community on policy issues.

Senior Technical Advisor (STA)—The OO-ALC STA is the senior advisor to the center commander on OSS&E. The STA provides guidance as necessary and coordinates efforts of all center chief and lead engineers in maintaining OSS&E certification. The STA will chair the OSS&E ERT and ensure the center commander and senior staff is informed of OSS&E issues.

Service Level Agreement (SLA)—An agreement between the SM and supported or supporting organizations which identifies what authority has been delegated among the participants.

Single Manager (SM)—The single individual specifically designated, under the integrated weapon system management architecture, to be responsible for the life cycle management of a system or end item. SMs are responsible to their customers for all aspects of the planning, development, sustainment, and evolution of the products they acquire and support. SMs serve as the single face-to-the-customer for their respective systems or products.

System Support Manager (SSM)—The lead individual at an AFMC organization (e.g., ALC) when an SM located at another center delegates sustainment responsibility for the system/product to the supporting organization.